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Pollen grains of Picea.—POLLOCK[45] has described variations observed in the pollen grain structures of *Picea excelsa*, chiefly in reference to the so-called prothallial cells. The usual number of these cells reported for the Abietineae is two, but POLLOCK finds the variation in Picea to range from one to three, with one as the number in the majority of cases. This is an interesting situation, as these cells have been reported thus far for the conifers only among the more primitive Abietineae and Podocarpeae, and it shows that even here they are in a very fluctuating condition. The condition among the Araucarias, recently announced by THOMSON, is interpreted as representing a still greater multiplication of prothallial cells, an interpretation that is probably justified. That among the conifers all stages in the elimination of this tissue are represented seems evident.—J. M. C.

Sclerotinia on Forsythia.—OSTERWALDER[46] has described a disease of species of Forsythia induced by *Sclerotinia Libertiana* which has heretofore been reported only upon herbaceous plants. The fungus infects the shoots of Forsythia only through the withering flowers, and extends up and down the woody branches from those points, causing a wilting of the twigs alone. Sclerotia are formed abundantly on the infected parts and after being kept over winter produce the typical apothecia of Sclerotinia. Spores or mycelium grown therefrom produced the disease anew when placed on the floral parts. Although Botrytis conidiophores occurred on some of the withered flowers, the author was able to show that these were not connected with the Sclerotinia, thereby supporting the view that *Sclerotinia Libertiana* has no conidial form.—H. HASSELBRING.

A sterile Bryonia hybrid.—In studying the development of the sex organs of a sterile hybrid of *Bryonia alba* and *B. dioica*, TISCHLER[47] comes to the conclusions that the absolute sterility has nothing to do with the tetrad formation because the megaspore series shows the normal tetrads, and that while there are irregularities in the formation of pollen there are also cases in which normal pollen is formed. It is possible that the cause of sterility in hybrids is more complicated than has been supposed. This work does not support the theory that sterility is due to total or partial loss of power by the male or female chromosomes. It may be that the sterility is due to a low nutrition of the protoplasm. It seems probable that the cause of sterility can best be investigated by combining culture methods and cytology.—CHARLES J. CHAMBERLAIN.

Photosynthesis.—USHER and PRIESTLEY have contributed strong support to the theory of BAEYER that formaldehyde is the first product of photolysis of CO_2.

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[45] POLLOCK, JAMES B., Variations in the pollen grain of *Picea excelsa*. Amer. Nat. 40:253–286. *pl. 1.* 1906.

[46] OSTERWALDER, A., Die Sclerotienkrankheit bei den Forsythien. Zeitsch. Pflanzenkr. 15:321–329. *pl 5.* 1905.

[47] TISCHLER, G., Ueber die Entwicklung der Sexualorgane bei einem sterilen Bryonia-Bastard. Ber. Deutsch. Bot. Gesell. 24:83–96. *pl. 7.* 1906.

They find[48] an enzyme in spermatophytes and pteridophytes generally, which decomposes H_2O_2 energetically, with the evolution of O_2. When this enzyme is destroyed or its action inhibited, the chlorophyll is quickly destroyed and the plant bleached. They also demonstrated the formation of formaldehyde (when its prompt condensation was prevented) in the immediate vicinity of the chloroplasts. The usual condensation of the HCOH is due, they hold, to the protoplasmic stroma of the chloroplast and not to an enzyme; yet the experiment on which they rely is not conclusive on this point.—C. R. B.

Seeds of Euphorbiaceae.—A study of the development of the seeds of numerous genera and species of Euphorbiaceae has given SCHWEIGER[49] the following results: The obturator, a tissue which serves for the conduction and nutrition of the pollen tube, is always present. It disappears gradually after fertilization, leaving only a slight remnant which belongs to the placenta and never to the seed. The tip of the nucellus is often much elongated, and until fertilization is effected is often in direct connection with the obturator. The caruncle belongs to the seed, is developed from the outer integument, and serves to separate the seed from the placenta.—CHARLES J. CHAMBERLAIN.

Zygospores of Mucor.—According to HAMAKER[50] the production of zygospores of *Mucor stolonifer*, with proper conditions of moisture and temperature, is dependent only upon the nature of the substratum. The atmosphere should be saturated with moisture and the temperature about 70° F. The substratum used is corn muffin bread, which the baker makes after the following formula: corn meal, 16 pounds; flour, 3 pounds; lard, 3 pounds; salt, ½ pound; eggs, 48; sweet milk, 3 gallons; baking powder, 18 ounces. In a large proportion of cultures zygospores appear in five to seven days.—CHARLES J. CHAMBERLAIN.

Germination of pollen.—JOST has succeeded in germinating the pollen grains of various grasses,[51] which have heretofore proved refractory, by growing them under conditions where they can obtain water very slowly from the medium by which it is held. Thus, a starch paste made with only one or two parts of water proved useful; and also parchment paper soaked with a sugar solution. The pollen grains of certain Compositae have also yielded to the latter treatment, but none of the Cichoriaceae or Umbelliferae.—C. R. B.

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[48] USHER, F. L., and PRIESTLEY, J. H., A study of the mechanism of carbon assimilation in green plants. Proc. Roy. Soc. London B. **77**:369–376. 1906.

[49] SCHWEIGER, JOSEPH, Beiträge zur Kenntniss der Samenentwickelung der Euphorbiaceen. Flora **94**:339–379. 1905.

[50] HAMAKER, J. I., A culture medium for the zygospores of *Mucor stolonifer*. Science N. S. **23**:710. 1906.

[51] JOST, L., Zur Physiologie des Pollens. Ber. Deutsch. Bot. Gesells. **23**:504–515. 1906.